

Th. Sect.

MANIFESTATIONS OF RHEUMATISM IN CHILDHOOD.

T H E S I S

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MANIFESTATIONS OF ACUTE RHEUMATISM IN CHILDHOOD.

Owing to the great prevalence of this disease and the ease with which the symptoms are so often overlooked with such direful consequences to the patient and to the country at large in later life is my reason for trying to put together a short thesis from my own personal observation, as well as those of others, in a number of cases that would have been passed over as trivial illnesses had one not borne in mind the great necessity of careful investigation in all minor complaints of children.

It is not too much to say that in 50 per cent. of children suffering from pyrexia and other slight ailments, these are due to Rheumatism, and in the recent reports of the Health Insurance Committees it is stated that one-sixth of all the illnesses that come under their observations is due to Rheumatism in some form or other, e.g. Lumbago, Sciatica, Pleurodynia, etc., and it is very evident that the incidence of Rheumatism as a factor is coming to be more and more a subject that needs very careful diagnosis and that early, so as to try and obviate the consequences in later life. I fear that/

that the student as well as the general practitioner is not sufficiently impressed with its gravity and that by lightly dealing with the early symptoms, a number of cases drift to hospitals, which are overtaxed with work, and often the child is only seen when it is often suffering from some irremediable complaint of the heart that would have been obviated had the diagnosis been more thorough when first seen by the family doctor.

The consultant, as the physician at the hospital is often; gets the material for a textbook on medicine which is gleaned from Hospital cases and often is not a complete picture of the case from the commencement, and in my opinion it is the general practitioner who sees the picture throughout. Far be it from me to decry the consultant or Hospital physician, a more useful and hard-working member of our noble profession but I suggest he does not often get the case until it is beyond remedial measures.

May I submit that such cases as "Growing Pains," or Erythema Nodosum are seldom seen in hospital until such symptoms as dyspnoea, debility and anaemia tell the nature of the illness of which they are but sequelae; and here there is a vast field open to the general practitioner in detecting/

detecting and treating those early signs of rheumatism in children, which present to the hospital the majority of cases of heart disease in adult life.

Aetiology of Rheumatism.

For long the cause has been put down to colds, impoverishment and want of proper covering as well as poor housing conditions or that the child was a subject of the Rheumatic Diathesis which was always emphasised by my old teacher, Professor Grainger Stewart as a condition to be kept in mind; he spoke of a number of diatheses, e.g. Rheumatic, Sanguineous, Phlegmatic and the Leucophlegmatic, Bilious and the nervous constitutions, and laid stress upon each one of these being more prone to certain complaints than the others. I am inclined to the belief that the Sanguineous, Phlegmatic, Leucophlegmatic and the Nervous Constitutions are more prone to Rheumatism than others.

My object is to give the results of personal observations in a few cases out of a large number that I have attended.

This is a subject that has not had adequate attention in the text-books of medicine.

The/

The systematic study of rheumatism in children has been, so far, confined to the efforts of a comparatively small number of men, and it has not received anything like the amount of attention it deserves.

In the following thesis an attempt will be made to place together a few observations as met with in general practice, and to bring these phenomena into their relation with one's view of Rheumatism as a whole.

So recently as 1923 at the meeting of the British Medical Association, Dr. Reginald Miller, London, in introducing a discussion on Heart Disease in early life stated that Acute Rheumatism constituted one of the major problems concerning the nation's health.

Directly we begin to think of this subject as a national question, we find ourselves thinking of one disease and one disease only, that of acute rheumatism, that great, essentially British infective disease; other diseases there are which will affect the health of children and of course they are not ruled out of our discussion, but for practical purposes the problem of heart disease in early life is commensurate with the problem of Rheumatic infection. Dr. Miller, in the course of his remarks, stated that taking all types, mild and severe alike, during the last 50 years, the symptoms/

symptoms of acute rheumatism had somewhat declined in number, of the severer types, e.g. Hyperpyrexia at Guy's Hospital in the 10 years 1900-1910, there was only one case in 1053 instances of Rheumatic Fever, and at St. Mary's Hospital in the last 15 years he could only recall two instances. Admissions to hospitals were fewer and the evidence of Acute Pericarditis, the second most serious rheumatic manifestation is falling, yet on the whole we are wholly dissatisfied in the rate of progress made, for rheumatism still remains one of the great serious infections of our land. He stated that the modern view of rheumatism is that it is a special or specific bacteriaemic infection, working by repeated recrudescences and reinfections and producing no sort of immunity against itself. Dr. Miller asserted that any improvement that had come about was due more to clinical work rather than public health administration.

Dr. Robert Hutchison of London has pointed out that acute specific fevers and microorganismal diseases are more common in children, it is a strong argument in support of acute rheumatism being due to a microorganism. Confirming this theory comes the experiment by Torri, who found that toxins injected into the blood of animals failed to set up endocarditis. Meanwhile, we must be content/

content to take the clinical material at hand, in order to reduce the appalling remote mortality of the Acute Rheumatic manifestations in children. It will, I think, be the experience of most practitioners who are not in a position to make blood films, cuttures and bacteriological investigations, that clinical data are essential.

Had one particular organism been isolated and by a series of experiments absolutely proved to be the actual cause of Acute Rheumatism and had been universally agreed that it was the cause, I fear it still would scarcely alter our responsibility in connection with its manifestations in children at least.

Further, that we are not searching for an organism that will give us the clue to suitable treatment in the majority of cases of Acute Rheumatism in children as well as in adults, leads me to think that as far as diagnosis and treatment are concerned, we have strong prophylactic and curative weapons, provided the right diagnosis is made and the proper therapeutic agents used.

I am of opinion that in the diagnosis of Rheumatism in children we ought to and will always require to depend upon predisposing factors much more than upon existing factor or factors, whatever they may be.

Up to recent years it was considered to be caused by chills/

chills, want of proper food and clothing, and of most importance, heredity.

Cullen attributed the disease to the direct influence of cold upon the joints, which he believed vulnerable on account of their comparatively thin covering, the inflammation commencing here and from there becoming general through the system. I. K. Mitchell suggested the primary lesion as localised in the Spinal Cord, chill and exposure irritating the sensory nerves over a wide area and setting up this central disturbance, which was in its turn reflected to the nerves of various organs or tissues, thus producing the manifestations. Sir Alfred Garrod looked to Lactic and Uric Acid as the exciting cause.

It was looked upon as akin to Malaria by Saunders, but it has been shewn conclusively that the two diseases are wide apart.

Paynton and Paine discovered the Diplococcus Rheumatism of the Streptococcal Group which they found in the tonsils and other organs, and they, by experiments on rabbits by infecting a preparation from a culture obtained from Rheumatic nodules, produced Arthritis also Carditis. Yet these observers are not positive that the Diplococcus Rheumatism/

Rheumatism is the cause, but probably a toxin, from this bacillus.

Under certain circumstances and particularly in patients whose parents have suffered from Acute Rheumatism this diplococcus develops pathological properties, gains access to the system and sets up many and various manifestations. Constall and Seitz have attempted to prove that chill of certain parts, especially of the skin and the joints, causes disturbance of the central nervous system and this disturbance reacts upon the corresponding parts of the peripheral system and causes symptoms of Rheumatic Fever.

I consider the following the most important Aetiological factors:

1. Heredity
2. Chill
3. Gastro-intestinal disturbances
4. Traumatism
5. Rheumatic Soils.

1. Heredity. Inheritance is said by Dr. Mitchell Bruce to occur in 27 per cent. of the causes of Acute Rheumatism but I think there can be no doubt that in children the percentage could be much increased. In my own collected cases I would put the percentage at no less than 50 per cent. of the cases. Some authorities put it higher and with good reason, for in my experience of Acute Rheumatism with/

with unmistakeable symptoms, such as pyrexia, sweating and polyarthrititis, the family history of Acute Rheumatism could almost invariably be got. Such a display of classical symptoms is rather the exception in children, for in them Acute Rheumatism does not, as a rule, exhibit itself by unmistakeable signs and on that account it is easy to overlook. I. O. Symes states that Rheumatism in childhood is totally different from that of the adult. The lessened severity of the Arthrititis often being nearly absent, the pyrexia often in abeyance, and when it exists never beyond 100° - 101° , the absence of profused sweating, the more frequent occurrence of heart complications, rashes, tonsillitis, chorea and subcutaneous nodules.

The occurrence of any one of these symptoms in a child should arouse the suspicion of a Rheumatic taint and afford ground for the adoption of preventive measures.

The fact is that in all cases where the symptoms pointing to Rheumatism in a child are very vague, and where there is difficulty in coming to a precise diagnosis of such symptoms as dullness, drowsiness, fretfulness and perhaps slight temperature or slight pain in the calves, we are not justified in coming to a conclusion without first finding out whether the parents have had Acute Rheumatism./

Rheumatism. That heredity is a predisposing factor in the causation of Acute Rheumatism is a very real one and one that will give much assistance to the practitioner, which cannot be denied, and if present will turn his mind to the proper treatment of one of the most important and certainly, in its direct results, the most serious of the diseases that affect children.

The following case is typical:-

H. M., female, aet 4 years, complained of vague pains in head and neck for some days, of which the mother took very little notice. The continued irritability of the child and the absence of the normal activity caused the mother to consult me. The child had a temperature of 99°F., Pulse 98, respiration normal, heart normal as far as one could find with the stethoscope and by percussion, there was no cough. There was slight gastric disturbance, and a furred tongue, but neither vomiting nor diarrhoea. The mother informed me that the child seemed to be aching all over and cried when moved in any way. As will be seen, there was really very little to guide one to a diagnosis, but the history of acute Rheumatism in the mother, and frequent sore throat in the child, led me to conclude that this was a manifestation of Acute Rheumatism. The child was at once/

once treated with rest in bed, with milk diet, calomel aperient and Salicylate of Soda. About 7 days later a slight mitral systolic murmur could be heard at the apex, proof positive of what had been going on. After two months in bed the murmur disappeared and the heart has remained normal.

Another case of a boy aet 9, H. M., I was called to see. His mother stated he complained of persistent headache especially in the occipital region. He was highly nervous and blushed at the few questions asked him. He had no pains beyond the headache and I was somewhat at a loss to account for his pain - reflex pain from his teeth was negatived and no symptoms of meningeal trouble. I remembered that I attended both mother and grandmother for Rheumatism and thereby got help into diagnosing the case of Acute Rheumatism and in addition on examining the heart found a typical mitral murmur at the apex along with an accentuated 2nd sound over the Tricuspid area. He was kept in bed for 6 weeks with Soda Salicylate and I am able to say that the murmur disappeared; since then he has had another attack but with the warning I had I immediately placed him in bed and he was soon well without any cardiac lesion.

2. Chill/

2. Chill. It is often looked upon as a symptom of an illness than a cause, but in the case of Rheumatism I think there can be no doubt that chill is an important factor in its causation; as I have already stated, Cullen attributed chill as the cause of Acute Rheumatism.

J. K. Mitchell as well as Constall and Seitz give chill as the prime cause of this malady. The various theories regarding chill and its connection with Rheumatism are interesting, inasmuch as they mark steps in the progress of the pathological aetiology. Observers from time to time have shown that as a result of a chill, lactic acid may be retained in the system, that metabolism may be upset, that the central nervous system may be affected, that uric acid may be in excess in the blood and indeed that chill may produce toxins that act upon the joints and other parts (Fuller, Latham). Prout and others advanced the theory that lactic acid accumulated in the system and that this toxaemia caused Acute Rheumatism. These suggestions although similar are all valuable, and although mostly exploded as theories in face of our to-day's knowledge, yet there is no warrant to dispose of this factor as predisposing to Acute Rheumatism. One often hears from a mother that the child going to school on a

wet/

wet day, sitting in wet clothes or damp boots, and then taking the child to bed feverish, and out of sorts suffering as we know from what to all intents and purposes is in reality rheumatic fever.

The point is that wherever one finds a history of damp clothes, damp feet, or even damp atmosphere, one is justified in regarding the chill theories with something more than a passing consideration and in leaning to the diagnosis to which such a factor predisposes or exists with very great regularity and especially so when associated with poverty and fatigue.

The following is a case I had some time ago. M. H., aet. 5 years, who always enjoyed good health, was out of sorts for about 24 hours before I was called in. No pain or uneasiness was complained of, but my attention was arrested by the restlessness of the child, respiratory and heart sounds normal, pharynx somewhat congested, tongue furred, skin moist, temperature 100°F., pulse 105. The child was given an aperient the previous evening. I elicited the fact that the child had been in the garden on the damp grass the previous day. There was a history of Acute Rheumatism in the mother. This, along with the temperature and in spite of indefinite pains about the abdomen, brought me to the conclusion that this was a/
a/

a case of Acute Rheumatism, and I treated the child accordingly with excellent results, for though the temperature next day was 101⁰F. and the pulse 109 and continued in this condition for two days, it was evident from the improved condition that resulted, disappearance of fretfulness, dirty tongue and temperature with Salicylate of Soda and Arsenic that this was a case of Acute Rheumatism which was installing itself insidiously. This seems to be a case where the chill arising from damp grass upon the feet caused a diminished resistance to the Rheumatic toxin or Micro-organism in this child. That this case might have been placed among the trivial cases that might have been designated as a Febricula or Influenza is certain. It is impossible to say what might have actually happened had the case been treated with Liq. Am. Acet. and Spirit Aeth. Nit. It is my opinion that as Influenza is a very rare disease in children, every other explanation of temperature in children should be excluded, even if nothing but temperature is present to assist us. One should be very careful about treating children for Influenza for there is a reasonable probability that some children have a tendency to Acute Rheumatism whose clinical symptoms are very little different from those seen in adults suffering from Influenza/

Influenza although I do not know of any good and certain sign whereby we may diagnose the latter disease when present in children. Where I have had difficulty in my own practice I have treated the trouble with Salicylates and Antipyrin and this I have found an excellent line of procedure judging from the actual results.

3. Gastric and Intestinal Disturbance. Without much doubt it is pretty confidently recognised that disturbances of the alimentary canal lead to acute Rheumatism and one often has to be careful in coming to a diagnosis especially as far as the after treatment is concerned. More will be said about this under Symptomatology.

4. Traumatism. I am quite certain that often a blow or strain to wrist or ankle or other part of the body is subject to Rheumatism and often a condition of Acute Rheumatism is set up from an accident the explanation probably being a reduced resistance of the tissues that have been injured and where the toxin or bacillus finds a suitable nidus to multiply their toxins. I have had numerous cases of this kind under my own notice and I have been quite unable to explain the/

the condition only on this assumption and the result of the treatment.

Dr. Mitchell Bruce has also shown that through an injury to a joint, an attack of Rheumatism may be set up. I cannot say that I have been entirely satisfied as to the actual agent here apart from the explanation of the diminished resistance of the tissues and the existence of the necessary poison in the system already.

5. Rheumatic Soils. There can be little doubt but that certain districts are much more predisposed to Rheumatism than others. E.g. Valleys with insufficient drainage, and parts of the country where the atmosphere is more often in a state of humidity as in North-East Lancashire and Blackburn in particular, where the rainfall is out of proportion to the rest of the country and on account of this dampness is most suitable to the town's industry, cotton weaving. Yet the number of cases of Rheumatism in all its manifestations is commoner than all other ailments put together.

6. Seasons of the Year. Dr. Mitchell Bruce states that it occurs with greatest frequency during the months of October and November. Some writers think September and October while Ostler thinks it most common during the dry/

dry season and at the time when the temperature of the earth is at its highest. The only explanation for this statement I can only surmise that the dusty conditions of the roads increases the number of sore throats where the bacillus gets one of its homes to thrive in.

7. Sex. From all statistics it may be pretty accurately said that it exists more commonly in girls than boys and especially neurotic children. It may be definitely stated that this disease rarely occurs in early infancy. Dr. Hutchison of London, in his Diseases of Children, states that Rheumatism does not occur during the first year but may occur after this.

On the contrary Holt describes a case of Acute Rheumatism in a nursing infant, while Miller of Philadelphia found 19 cases under one year.

In my own cases there were none below 18 months and the majority were between the ages of 4 and 9 years. This much may be said without fear of contradiction that from 2 years onward the percentage of cases steadily increases with each year until the age of 5 to 9 years, then decreases as the age of 10 to 15 approaches. It would almost seem that about the 5-9th year a child with the predisposition to the disease is particularly vulnerable and/

and the explanation of this may be that at this age children are not so closely guarded by their parents as in more tender years.

Perhaps the foregoing indications may not bear much on a diagnosis yet at all times should be borne in mind.

Symptomatology.

It is well to state that Acute Rheumatism in children installs itself insidiously. R. O. Moon states that if the classical description of Acute Rheumatism was taken from children we should have a very different conception of the disease; whereas in the adult the joints are swollen, very painful, with the accompanying profuse sweating with the very pungent acid smell, and often great constitutional disturbance. In children, on the contrary, very little pain, not severe, hardly any swelling of joints, no sweating, with very slight constitutional symptoms, pyrexia slight, and hyper-pyrexia practically unknown. In the adult the joints are more affected and in childhood the brunt falls on the heart. It is very possible that, had the description in books been taken from the children's clinical condition, a much/

much wider and more adequate field would have been covered, and it might be said that the difficulties met with and the mistakes over the subject of Rheumatism in children might have been mitigated by exciting the attention of the practitioner. To disabuse the practitioner from expecting to find symptoms staring him in the face and crying out for a diagnosis and one line of treatment. Such, in my experience, never occurs, or very rarely.

Any practitioner on entering the sick room of the adult suffering from Acute Rheumatism realises at once the condition of the patient, but very different is the tale in the young child suffering from Acute Rheumatism, one of the most indefinite of diseases, with signs and symptoms that count for so little, and yet in the experience of many practitioners have proved to be only the shadow of the devastation of valve curtains, etc., that was going on within.

Let me impress the fact that in making a diagnosis of Acute Rheumatism in a child, one must not expect to find such cardinal symptoms as severe joint pains, profuse sweating and pyrexia.

I shall in the following pages endeavour to show that a diagnosis of Rheumatism in childhood may require to/

to be based upon a single symptom and not on a combination of them, and further, ~~and~~ that conditions called complications of Rheumatism in the adult, i.e. Myoperi and Endocarditis may be the only sign to us that the disease has been present at all, hence the extreme necessity of early diagnosis in order to avert such far-reaching results.

(1) Rheumatic Throat. That inflammatory conditions of the throat are common in children most practitioners know from experience, yet no differentiation has been made as to the underlying causes of this inflammatory condition of the throat; we recognise such conditions as Tonsillitis, follicular tonsillitis, granular pharyngitis and peritonsillitis, and many others, but what one recognises is that these names imply nothing more than the condition seen. Indeed it is all but forgotten that a simple pharyngitis or tonsillitis may have no distinctive symptom and yet have a cause quite as definite as that found in Scarlet Fever or Diphtheria.

It is on this account that I think there ought to be as far as possible distinctive names for the similar conditions of the same part, when the underlying cause is different. Therefore I propose to designate the inflammatory/

inflammatory conditions of the throat found associated with Rheumatism in children as Rheumatic Throat. Against this view Dr. Barclay Baron of Bristol and others hold there is no need for differentiation because there is one underlying cause and they regard Follicular and Suppurative Tonsillitis as entirely associated with Rheumatism. From this view I must dissociate myself as the cause of Acute Rheumatism has not been discovered positively although Paynton and Paine consider their Diplococcus the cause, and if we regard the Streptococci and mixed infections of organisms in the inflammatory conditions of the throat and also find them in Acute Rheumatism, but as the particular organism has not been discovered that gives rise to both conditions it is impossible to say that they are the immediate underlying cause.

To many practitioners a distinctive name to a condition is a help to carry in mind the importance of the phenomenon and for that purpose I have called the condition "Rheumatic Throat."

This congestion or inflammation of the throat may be the first sign of Acute Rheumatism in a child and some look upon it as incipient Rheumatism, while others conclude/

conclude that the Rheumatic Throat is as dangerous to the heart as the fully developed attack which one sees so often in the adult.

Sutherland asserts that this condition is usually to be diagnosed from the presence of other signs of the Acute Rheumatism or the persistence of the tonsillitis, with pyrexia and pain on swallowing which do not yield to ordinary throat treatment. He further adds that attacks of tonsillitis are often Rheumatic in origin and unless the nature of this form is recognised very serious results may follow.

Hutchison of London points out that in cases of tonsillitis purely Rheumatic in origin the inflammation is not confined to the tonsils but tends to spread to the levator palati muscles, producing pain in the upward and downward movements of the soft palate.

Of recent years great attention has been paid to the adenoid, peri-adenoid and fibrous tissues of the throat and pharynx as being the starting point or preparation soil from which a number of diseases arise and among these is Rheumatic Fever. It is to be remembered that other diseases besides rheumatism have their source of origin in the throat, yet it is the overlooking of the/

the possible cause being in the throat that errors may arise. In the case of children it is not that we too often diagnose "Rheumatic Throat" but that we forget or neglect the significance of this condition in childhood, the probable reason being that we have been used to look upon Tonsillitis, Quinsy and Pharyngitis merely as morbid conditions which, if they affected the general system at all, did so indirectly. There is a great similarity in affections of the throat and an even great difficulty in finding out the causes of these conditions which may make the diagnosis all the more difficult but that does not relieve the practitioner from the onus of differentiation nor the responsibility of early detecting the underlying disease, for there is nothing so immeasurably sad as to find a child of 7 to 10 years of age with a history of sore throat for two or three years and a legacy of a systolic and presystolic murmur at the apex. There are certain indications which, I think, help in the diagnosis of Rheumatic Throat:

1. It is not often the tonsils are affected alone. In Follicular Tonsillitis one or both tonsils reveal the condition with plugs of white mucus, but the congestion is seldom seen round about, the same may be said of suppurative tonsillitis, whereas in the Rheumatic Throat you/

you will find in addition to a congested state of the tonsils an area of redness upon the soft palate as well as upon the back of the pharynx, and that the pillars of the fauces are swollen and red.

ii. In the Rheumatic Throat there is great pain in the movement of the jaw, whereas in Follicular and Suppurative cases only on swallowing.

iii. The glands at the angles of the jaw are invariably enlarged in the Follicular and Suppurative form but this is not evident~~ly~~ in the Rheumatic form.

iv. Pyrexia is selcom above 100°F. in the Rheumatic Throat whereas it is often 102°-103°F. in Follicular Tonsillitis. Thus I think one may say there are certain fairly satisfactory signs of the Rheumatic Throat such as, (a) Insidious Onset, (b) General blush of redness with swollen faucial pillars, (c) tenderness on movement of jaws, (d) absence of enlarged glands, (e) slight pyrexia.

One may look in vain for vague pains about the limbs or tenderness of the joints. In the absence of clear evidence one may find confirmation in the previous history or in the family history and the Rheumatic Facies.

I am obliged to confess that there is nothing absolutely/

lutely definite about this description of the Rheumatic Throat and many cases may not agree with my observations. I think, however, that if care is taken to weigh the pros and cons of the possibility of Rheumatism being present much may be done in the future to counteract the development of the disease itself and its consequences. If the Rheumatic throat and the Rheumatic Diathesis are present there will only be a few cases that can remain doubtful and even these, in my own experience, are best treated with calomel and salicylates and thus the risk is diminished to a minimum.

The following is a case that occurred in my practice recently. E. D., aet 6 years, was said by his mother to have been unwell for a few days, but made no definite complaint. On examination temperature was 99.6°F. pulse 80, no respiratory disturbances. The skin was moist, tongue dirty. On close examination of the throat I found there was a complete circle of congestion including soft palate, tonsils and pharynx. The pillars of the fauces were oedematous and swollen. The fact that I had attended the father for acute rheumatism gave me a hint as to what the condition was most likely to be, and I treated the case as I treat them all, if I consider them rheumatic in origin:

a./

(1) By rest in bed with woollen wrap round the neck, body lightly covered but lying between woollen blankets so as to prevent chill of the surface by respiration.

(2) Diet milk, milk pudding, egg flip, soda water and plain water.

(3) Aperient of Calomel $\frac{1}{2}$ -1 gr. repeated every 4 hours until a good action of the bowel results.

(4) Hot fomentations to the throat or a Turpentine repeated every 4 hours and when cold removed and woollen wrap put on.

v. The Therapeutic Agent par excellence in this condition is undoubtedly Sod Salicylate with Carbonate of Ammonia in doses of grs. $\frac{1}{2}$ to 2 grs. of the latter made up in a mixture with Aqua Chloroformia.

If the throat is very bad and has evidently been going on for some days and especially if the patient shows other signs of Acute Rheumatism I add to the Sod Salicyl Mist ^(omitting) ~~without~~ Ammon. Carb. Liq. Hydrarg Perchor.

Sod Salicyl 3ii
Liq Hyd Per 3ii
& Chloro 3vi
3h.
stomach adding
Sod 3i/4
above.

3ii Pot Iod Gr 3, * Sod Salicyl with $\frac{3ii}{1}$ of Ferri Perch. with Glycerine 3vi made up with Aqua Chloroformi makes a very elegant and palatable mixture.

In the above mentioned case some days after the treatment was commenced the boy complained of pains in the legs and/

* A. Mixture of Sod Salicyl $\frac{3ii}{4}$ -26-
Fr Ferri perchlor 3ii
Guo Chloroformia 3viii $\frac{3}{4}$ 3h

and tenderness on movement and pressure. These along with the throat symptoms gradually disappeared and the temperature was quite normal on the 7th day. Even in simple Rheumatic Throat, I do not consider it wise to allow the patient out of bed before the tenth day after the temperature is normal, and while this is perhaps the most difficult part of the treatment to carry out, it is certainly an excellent procedure, for if the letter of the law is not carried out absolutely, it certainly goes to influence both parent and child to some extent at least.

2. Growing Pains. This is a condition which has crippled thousands of hearts, yet is looked upon by the laity with sublime indifference which is equalled only by the indifference of the practitioner who treats it lightly. It is a symptom of Rheumatism so definite when it is present that the man who does not regard its gravity, takes upon himself an unnecessary responsibility. That there is no other disease of childhood which produces this significant sign of pain of the fibrous structures throughout the body is as striking as it is important. It is lamentable to think that in industrial centres (like this town of Blackburn) that on pointing out to parents of both middle and/

and lower classes that "growing pains" are in reality symptoms of Rheumatism, how very sceptical they are and often will argue that it means nothing more or less than "thrif," meaning by that the pain accompanying growth.

What I have said in a previous chapter regarding Felericula and Influenza may be well repeated here. The only pains that approach in similarity to those of Rheumatism are the vague, wandering, sometimes acute pains met with in the adult suffering from Infleunza.

The structures attacked by the toxins or bacteria of Rheumatism are the tendons of muscles, sheaths of muscles, fibrous aponenroses and ligaments. The commonest sights of such pains is the ~~Tendo~~ Achillis or Calf Muscles. Every practitioner knows the condition when he hears on enquiry that the child has often had growing pains. This is the medical attendant's opportunity to emphasise to the parents the imperative need of proper treatment by rest, diet and medicine.

I fear that on account of the ease with which the symptoms disappear under appropriate treatment we treat the affection too lightly. Growing pains may attack any part of the body and simulate other diseases, e.g. a child walking on the balls of his toes so as not to put the/

the ham-strong muscles on the stretch may lead one to think of Hip Joint disease, also in the fibrous tissue of the cervical vertebrae as well as in the fingers and toes, and it may be that the frequent complaining of smarting eyes heard of so often in schoolchildren may be due to the Rheumatic Toxin and where refraction at times has to be corrected.

It is sometimes proven by the treatment with Salicylates when the symptoms disappear.

It appears that the toxin of rheumatism has the power of selecting its sites by its attacking muscles and tendon sheaths and especially those in most use as in the wrist and knee joints and the eye, and occasionally in the ligaments of the Spinal Column, whether it is the activity of these various parts causing a diminished resistance to the poison it is impossible to tell, yet it is quite a reasonable explanation, for these parts are oftener bathed in "the products of their own combustion" than many other parts.

I think the most deceptive seat of growing pains is the back, as it often may give rise to symptoms leading one to think of Spinal caries, also may give rise to a pseudoparalysis which clears up under treatment.

The/

The following case will explain the difficulty met with: A.H. aet 7, female, complained of pain in the back for some weeks. There was a general kyphotic curve of the dorsal part of the spinal column, which could be reduced by lifting the arms, and she could, when asked, voluntarily stand quite straight. She had a slight limp and over an indefinite area of the spine there was tenderness on pressure. This could be brought about by pressure on the shoulders. Temperature was normal, pulse 84, respiratory sounds normal, heart sounds rather weak and the first sound at the apex blurred. There was also a family history of rheumatism and I concluded it was a case of growing pains and treated the child with rest and Sodium Salicylate for some weeks under which she recovered and is now quite well.

I shall cite the following case to show the difficulty in deciding whether pain in the back in a young child is due to rheumatism or to some other affection of the Spine or Spinal cord. Recently a little girl aet 5 years came under my care. She had been treated with Salicylates for acute rheumatism affecting the ligaments of the Spinal column. The mother explained that the child complained of very severe pain in the back, had gone off her feed, and sweated freely. On examination, the temperature was normal/

normal, pulse 92, no cough, respiration normal, heart sounds quite normal. There was a slight curvature on the lumbar region with tenderness on tapping over the spines, but this could not be brought out by pressure on the shoulders. She had some difficulty in walking and bending. One came to the conclusion that this was a case of Potts' Disease. The child was sent to hospital where she evidently improved rapidly and was discharged with instructions to keep her upon her back and to feed her up. Shortly afterwards, a colleague of mine was called hurriedly in to see her, and, as he afterwards told me to my chagrin and surprise, found the child with dyspnoea and irregular action of the heart, no temperature nor pain but what in reality seemed to be proof positive of Acute Rheumatism, endo and myocarditis. A few days later, I was again asked to see the child and found her suffering from slight photophobia with sometimes slow, sometimes rapid and again irregular action of the heart, what one might term an erratic heart along with drowsiness. I concluded that the symptoms were not due to myocarditis but to commencing meningitis, from which the child died very shortly afterwards. Such a case is not easily forgotten and what is required is more and more to be able to discriminate and above all to be precise.

3. Rheumatism of the Joints - Arthritis.

In children it should always be remembered that the amount of joint inflammation is a very different thing to what one finds in the adult and if one were to depend on the diagnosis for the amount of arthritis met with ~~one~~ in children, we should often be deceived and led astray. I have, for long, ignored the want of any joint affection and looked for the diagnosis from the other conditions to be found. I fear that too often the stumbling block has been the anticipation of joint pains and their absence that many mistakes have been made with pitiable results. I therefore believe that it is very essential not to rely on arthritis per se to assist in coming to a diagnosis of the condition present, otherwise disappointments will be frequent.

To form a picture of acute rheumatism as it appears in children requires a very prolonged time to acquire and that only by the study of cases at the bedside.

It will always help, if we take note that in a large number of cases, arthritis may not be present at all and if present there may be:-

1. No redness, nor heat, and very little swelling if any, about the joints.
2. Dull aching pains and not acute.
3. Slight tenderness on handling and movement.

There/

There can be no doubt whatever that when a child is found between the age of 3 and 10 years, who has been in the enjoyment of good health, complaining of pain in the joints, we are dealing with the manifestations of acute rheumatism in the child - one should bear in mind the possibility of Pneumococcal Arthritis arising in the course of a pneumonia which has been deep-seated and given no physical signs characteristic of that disease.

A. D., aet 9 years, presented all the signs of respiratory trouble, temperature 103°F., pulse 130, respiration 45, with pain in the side. I diagnosed pneumonia in spite of the fact that I could find no physical signs on percussion and auscultation. Some days after, both knees became very painful, swollen and red, and I had all but arranged to vary the treatment when the physical signs of the condition were heard at the base of the lung, which along with the pungent skin confirmed the original diagnosis of Acute Lobar Pneumonia in which the joints had been affected by the Pneumococcus.

The points to be remembered are:-

1. Arthritis is not common in children.
2. Do not postpone the treatment because of its absence/

absence.

3. When present it may be only in a very mild degree compared with the condition in the adult, but should be treated with the same care and attention.

4. Arthritis may arise in the course of Pneumonia and Typhoid Fever and may render the symptoms of the original condition obscure.

4. Erythemata in Acute Rheumatism.

Certain conditions of the skin may arise in the course of an attack of Acute Rheumatism, or even in the latent forms that indicates derangement of the peripheral bloodvessels and nerves, probably due to toxins in the blood. They are Erythema Nodosum and Peliosis Rheumatica, also Urticaria.

Erythema Exudativum and Erythema Marginatum are very rare in my experience.

These conditions of the skin are of importance in that by almost universal consent they are found in association with acute Rheumatism and that with or without other signs of the disease - the most frequent is:-

Erythema Nodosum - characterised by slight elevations of the skin varying in size from the size of a pea to that/

that of an almond, oval or rounded in shape, and appearing, in the majority of cases, on the anterior aspects of the legs, though sometimes on the calves and on the extensor surfaces of the radii and ulnae and elsewhere; at the moment I have a girl aet 14 years who is suffering from acute Rheumatism in which the nodes appear much more general even on the abdomen and thighs. They disappear for some days, then appear again. I believe in this case the poison is expending itself on the skin and probably wearing itself out in this manner, as the heart up to now is not affected. As I have already stated, they are slight elevations of the skin and are reddish purple in colour and often appear in crops. They may fluctuate, but never suppurate nor itch, though they are painful. Sometimes Erythema Nodosum is accompanied by Arthritis and sometimes by slight pyrexia and general disturbance, or it may occur without any sign of constitutional disturbance, and there is every possibility of the underlying condition of rheumatism being overlooked and evil consequences ensue. While there are some who consider that this condition is sometimes associated with rheumatism, others think it is always so, and certainly, not only does the frequent accompanying arthritis and pyrexia point in/

in the latter direction, but even when these are not present, the fact that one invariably sees it quickly disappear under rest and Salicylates, points strongly in favour of the rheumatic virus.

J. S., aet 13 years, came under my observation complaining of a rash which had appeared on her legs and had caused her considerable pain. On enquiry I found that she had, at varying periods in the three years previously, attacks of pain in ankles and knees, for which no kind of treatment had been adopted. The mother had also had acute Rheumatism. When I saw her (the girl) she presented a typical Rheumatic Facies, temperature 99°F., pulse 75, respiration normal and there was no sign of active mischief of the valves although auscultation revealed a very soft blowing systolic murmur following the first sound which was quite distinct. On examining the legs a very typical example of Erythma Nodosum presented itself upon the surfaces of both tibiae. The nodes varied in size from a threepenny piece to a sixpence in elevations of the skin, reddish purple in colour. She complained of slight pains in the ankles and knees which was increased by movement.

The/

The treatment I adopt in these cases and which I find eminently successful is:-

1. Rest in bed (which probably is the most important element) with the affected limbs wrapped in cotton wool and protected from the weight of the bedclothes by a cradle.

2. Saline aperient daily.

3. Strictly invalid diet, milk puddings, milk and soda water, lemon water and plenty of plain water.

4. Soda Salicy. 3ii

Liqr. Arsenicalis Hydroch. $\frac{3}{4}$

Fr. Ferri Perchlor. 3ii

Aq. Menth. Pip. ad. 3vi 3ii every 4 hours.

Under this treatment the erythema cleared up in about two weeks' time, but the blowing systolic murmur persisted giving evidence of what might have been prevented if only the cause of wandering pains had been treated.

Peliosis Rheumatica rarely occurs without unmistakeable signs of Rheumatism and while there is a possibility of an erythema or haemorrhagic condition arising from medication with salicylas we ought not to be intimidated, but continue the treatment under which we shall have the satisfaction of seeing the nodes disappear/

appear along with the underlying cause.

5. Rheumatism of the Heart - Carditis.

Of all the sequelae of Acute Rheumatism in both children and adults this is the most important and vital of all. In the adult in the course of an attack of Rheumatic Fever with its joint pains, pyrexia, one will always have this in mind, the possibility of the heart being affected, but in the child, the only situation attacked by the virus and which may set up endocarditis is the heart and that without any preliminary symptoms of Rheumatism.

Dr. Walter Carr points out in the Practitioner for November 1909 that of all children over 5 years admitted to the Victoria Hospital for Children, Chelsea, during three consecutive years, nearly 50 per cent. were suffering from either Rheumatism, Chorea or Heart Disease.

Mitchell Bruce has also shown that while the immediate mortality of Acute Rheumatism is only about 4 per cent., the number of cases in which carditis is found amounts to at least 50 per cent.

Dr. Walter Carr also remarks that for all purposes, valvular disease of the left side of the heart in a young adult may be taken ipso facto as evidence of an old/

old rheumatic lesion and thus we realise what a terribly serious disease Rheumatism in childhood is, comparatively slight though its immediate mortality may be.

Dr. Moore in the Lancet of April 24th, May 1st, and 8th, 1909, gives it as his opinion that endocarditis is the one lesion always present in the case of Rheumatic Fever, and would call the disease 'Heart Fever' rather than Rheumatic Fever. My own experience is that in children, the greatest difficulty is in being certain that we are dealing with a case of Rheumatic Fever since the cardinal signs of that condition are so often absent.

It may be granted that Moore is perhaps revealing the nature of the terminology in a rather strong light, yet I consider it would be a decided advance from the unfortunate position in which the description of this disease now rests. Leaving these points aside meanwhile there are none who will not admit that peri-, myo-, and endo-carditis may occur in the course of Acute Rheumatism.

The commonest seat of endo-carditis is the lining membranes of the left side of the heart, especially the mitral valve.

Some recommend a daily examination of the cardiac area/

area to discover any affection that may be brought about by the Rheumatic toxin. Dr. Mitchell Bruce suggests that the diagnosis is to be made from the presence of a bruit due to changes in the structure of the endocardium. By so doing, I fear we shall have waited too long and that changes that have brought about the bruit may prove irreparable. Endocarditis in children is so subtle in its progress, revealing no definite symptoms in the cardiac area, and in many cases there may not be any indication why we should expect to find endocarditis beyond the knowledge one has that one is dealing with a case of Acute Rheumatism. On these grounds alone I am of the opinion that we should try and find some evidence that will assist us in a diagnosis of the condition before any structural changes have taken place in the endocardium and a bruit can be heard in order that we may defend the endocardium and the other structures from the ravages of the Rheumatic virus so far as lies in our power.

I mean the following as points that may help us:-

(1) In the facies of the child, the characteristic rheumatic child having fine features, very transparent skin, good complexion, dark hair and particularly clear and shiny eyes.

(2)/

(2) In the temperament, this is characterised by a very unstable, easily excited, nervous system, so that the child, though not altogether well, is found to be in constant movement. This is worthy of note because it is in contra-distinction to that found in gastro-intestinal malaise.

(3) In the slight or marked anaemia of the child.

(4) Increased rapidity of the pulse especially in the erect posture.

(5) In the presence of rheumatic nodules.

(6) Presence of slight indefinite pains.

(7) Hereditary predisposition.

(8) Presence of slight and indefinite pains.

Many children which show the above conditions are often met with in practice every day and are looked upon as cases of mucous colitis or other derangement of the alimentary canal.

It is unnecessary to say that very few cases exhibit all the above signs at one and the same time, yet by finding one or two of these signs together may come to the conclusion tentatively that one is dealing with a case of Acute Rheumatism, e.g. rapid pulse with rheumatic nodules on elbows, or anaemia with a family history of Acute Rheumatism.

The better able we are to detect such a condition from the/

the appearance and history of the child in the early stage, the fewer of these cases will proceed to chronic invalidism in later years, and I venture to assert that if the disease is diagnosed at this stage, the heart though it may be certainly affected, will in the majority of cases with prompt treatment, recover its normal condition, the bruit disappear, the pulse become slower and the child become quite well again. If this optimistic condition should not result and the condition remain undetected, the inflammation of the valve curtains will find a nidus in the deeper fibrous tissues of the valve ring, and this ring may contract, so that not only will the condition become progressive from the point of view of the disease, but also from the child, because as the child grows, the amount of blood increases, the heart enlarges whilst the fibrous ring remains stationary or contracts.

The murmurs commonly arising out of Rheumatic endocarditis are:-

Mitral Systolic

Mitral pre-systolic - Systolic and
Presystolic.

Dr. ^{Carey}~~Carey~~ Coombs states that a middiastolic murmur is often heard at the apex; he considers it due to the suction of the blood into the dilated ventricle through a valve that is relatively smaller rather than due to vegetations or/

or inflammation of the endocardium (British Medical Journal 1908) and in this opinion Gossage joins him (Lancet August 21st, 1909).

It is nearly certain that where we have Acute Rheumatism with the symptoms of pyrexia, arthritis and tonsillitis, we very often find that endocarditis manifests itself by such symptoms as

- (a) Fresh outburst of Pyrexia
- (b) Slight enlargement of left heart
- (c) Blurring of the first sound at the apex, or a soft blowing mitral systolic, with accentuated second sound.

There are many difficulties in arriving at a precise diagnosis as to the condition of the heart, but not but they can be overcome, and a little experience in such cases will give us a power of decision that will reward itself in preventing lifelong heart disease in many instances.

N.H. aet. 9 years, complained of a peculiar weakness for some months. She had what I look upon as a typical Rheumatic Facies. There was no throat trouble whatever, pulse 85, no temperature; rheumatic nodules were found at the elbows and she had a particularly unstable nervous system. The mucous membranes were pallid, with these signs there was a family history of acute rheumatism, although after the closest investigation I could not elicit that she/

she had ever had acute rheumatism, or had complained of pains in the joints. There was however a soft systolic murmur at the apex which accompanied the first sound and was conducted into the axilla. The murmur did not clear up when the anaemia and debility had quite disappeared.

H.I. aet. 8 years, a boy whom I had been attending on several occasions with a peculiar anaemia for which I could find no explanation. What interested me most in the case was the marvellous way in which the boy recovered after two or three weeks' rest in bed and that in spite of the fact that the treatment was quite empirical. Quite recently I was called again to see him and found him in the same state of anaemia and debility. On this occasion the facies of the boy led me to ask the mother whether she or her husband had had acute rheumatism. I received an answer in the affirmative. On careful enquiry I then found that the boy had complained of pains in the back of his legs and back of neck. He was a child of very nervous and erratic temperament. On examination I found the temperature 99°F., pulse 90 in bed, in the erect posture 102, the throat was congested but did not cause pain, respiration normal, and the heart sounds weak, especially the first sound at the apex, and on exertion the first sound/

sound was followed by an indistinct blur, the mucous membranes were extremely pale, and the patient complained of dyspnoea on exertion. This is a case in which Acute Rheumatism was insidiously leaving its mark upon the heart, and the only sign of the mischief being wrought was a severe attack of anaemia.

In these cases the condition was no doubt due to the Rheumatic toxin attacking the cardiac elements and acting upon this, the absolute rest prescribed, gave the heart the opportunity of overcoming the influence of the toxins, and the salicylates along with small doses of Liqr. Hydrarg. Perchlor. had the effect of counteracting the manufacture of toxins and its distribution in the blood.

6. Rheumatic Subcutaneous Nodules.

I look upon these Nodules as pathognomonic of Acute Rheumatism and they are found in children and girls more frequently than boys.

During an attack of Acute Rheumatism especially in the latent form, crops of subcutaneous nodules are found about the joints and tendons such as the elbow joint, ankles, occipital suture and the tendons of the wrist, border of ulna, spines of dorsal vertebrae, border of scapula/

scapula and pelvis, even the palm of hands and periosteum of nose. Recently I found them in both Tendo Achilles in a little girl of 6 years.

According to Paynton and Paine they are fibrinous in origin and contain diplococci, they vary in size from a pin head to that of an almond, rounded or oval in form, occasionally moveable and are rarely tender. They are much like the structure of the vegetations found on the valves in endocarditis. Still found nodules in 27 per cent. of two hundred cases of Rheumatic children under 12 years of age and in milder cases such as attend hospital practice, 10 per cent. Microscopic Examination goes far to shew their importance as a grave accompaniment of endocarditis and pericarditis as the staining by Thionin pointed out by Martin Heidenhain, if applied to recent fibrinous exudation such as occurs in Rheumatic pericarditis or in pleurisy, it is found that the exudate stains a pale blue colour in contrast to the violet blue of the nuclei of the cellular elements and fibrous tissues. If this exudation be stained by Weigert's fibrin method it will be also seen that carbolgentian violet gives the usual reaction for that material. So far the naked eye appearance goes the smallest which can be seen after death.

It/

It was noted on several occasions that when only a few nodules could be found on the head during life, numerous deposits of the same yellowish pink material were visible at the P.M. The colour of these minute deposits is much less like fibrous tissue than that seen in older nodules which are greyish white rather than yellowish pink. Some of these deposits were more or less rounded in outline, others ran together into irregular areas each with its leash of small dilated blood vessels running up to it, the whole being too small to be appreciated during life. On attempting to remove one of these smaller nodules there is considerable difficulty, for they contain a certain amount of fluid exudative in character and any squeezing or traction diminishes their bulk so that they are lost altogether. This difficulty is the greater because there is no distinct line of demarcation from the surrounding fibrous tissue.

Microscopic details show distinctly the resemblance between early rheumatic nodules and recent rheumatic peri and endocarditis vegetations when stained by a similar method. In the centre of the nodule there is homogenous material arranged in layers and free from cellular elements. This stains pale blue with Carbolthionin and/

and gives Weigert's fibrin reaction with gentianviolet. It is this homogenous material which is the essential material in nodules and not the subsequently developed fibrous tissue. Compare this with the exudation on the free surface of the inflamed pericardium and the vegetations on the valves and it will be seen to have the same appearance and give the same reaction.

From the foregoing it is important to take especial care not to overlook the presence of nodules as more than probably they do not exist only as an accompaniment of the same process in the fibrous tissues of the endo- and pericardium and must be due to the same toxin in the blood due to the diplococcus already mentioned or some other poison not yet made out.

I have found these nodules present without a vestige of previous cardiac disease or any history of attacks of growing pains or Acute Rheumatism. I have found them on the elbows without any other sign of rheumatism excepting a slight anaemia and malaise and if the heart was previously affected I failed to elicit any sign of it. When these nodules are found, treatment should be adopted without delay and the child placed in bed and given anti-rheumatic medicines, and/

and one should always take a very serious view of the case because of the extreme liability to endocarditis.

Dr. Carr considers that nodules are not found except in recurrent attacks of Acute Rheumatism, yet my experience as above is very different.

Dr. Cheadle considered that when the nodules were large they were the equivalent to a death warrant to the patient affected, and perhaps with good reason, for if you find large nodules you may expect to find active and progressive mischief in the heart, of some duration.

7. Anaemia.

A common condition in most debilitating illnesses and as a separate entity is not of much avail as a symptom of acute Rheumatism and yet one must not think that it is always simple anaemia without excluding the Rheumatic factor in the causation. Indeed one has been able to improve a condition of anaemia by treating with salicylates and with highly satisfactory results, especially so when I could not satisfy myself that the condition was not a Rheumatic Toxaemia. I am not speaking now of cases of profound Anaemia one has seen in the course of a Rheumatic attack.

8. Chorea, which I consider one of the most troublesome accompaniments of Acute Rheumatism, sometimes a sequel is considered by Drs. Poynton and Paine as due to small lesions external to the blood capillaries and caused by the Diplococcus Rheumaticus which is carried by the blood stream to these positions. Allbut and Rolleston state that Chorea is one of the most interesting properties of Acute Rheumatism in childhood and one almost confined to that period of life. Genuine Chorea is very closely connected with the Rheumatic state. It appears not only in direct connection with Acute Rheumatism of the joints, but with endocarditis also with pericarditis, with erythema multiforme and nodosum and above all, with that especial rheumatic sign, the evolution of subcutaneous nodules. Chorea may appear in relation to one or more of these, and when it occurs alone apart from any other rheumatic manifestation at the moment is often followed at an interval by arthritis, or by other Rheumatic manifestations. The identification of the Diplococcus Rheumaticus in cases of Chorea recently found by Drs. Poynton and Paine seems to me conclusive as to the Rheumatic relationship.

According to my own observations I consider the nervous/

nervous child of the family most prone to Rheumatism, but no distinct association with specific nervous family disease can be satisfactorily traced.

Here again the salicylates are of great value, Arsenic is strongly advocated, Bromide of Potash or Soda by preference in children and even with a little Chloral Hydras combined to calm the restlessness and above all rest in bed.

9. Often Children suffer from conjunctivitis and episcleritis which get rapidly and completely well with ~~Sod~~-Salicyl. treatment alone, and it occurs to me that a large number of these cases seen in hospital would be better treated, and with better results besides causing much less trouble to the attendant, ^{and} ~~would~~ producing more resistance to the Rheumatic Toxin were they treated on antirheumatic lines. There is nothing to prove this except the appearance of the child and the persistence of the condition unless treated in the manner described.

10. It is always well in cases of complaints of the alimentary tract to bear in mind when a mother brings her child to you with a thickly furred dry tongue, foul breath, whose bowels are confined and appetite nil. The child complains of pains about the abdomen or elsewhere, is very/



very restless and perspires freely. You will be wise to find out the reaction of the fluids in the oral cavity before proceeding to treat with Pulv. Rhei. and Soda Bicarb. In the Rheumatic type of child with this condition the reaction is acid and not alkaline, by treating with soda salicylate the result is often surprising.

11. The various serous membranes of the body are frequently affected by the Rheumatic Virus causing peritonitis, pleurisy and Appendicitis and are somewhat indefinite as manifestations of Acute Rheumatism yet are benefitted by the antirheumatic treatment.

Dr. Clifford Allbut speaks of abdominal pain the course of Acute Rheumatism and states that nothing could be found post mortem to account for it.

Dr. Eustace Smith has shown some interesting cases strongly in favour of the assumption that peritonitis and appendicitis may have originated from the Rheumatic Virus, and he cites a case of appendicitis in an infant of $2\frac{1}{2}$ years in whom a mitral murmur was found to arise and develop at the same time as the appendicitis, and remained after the actual typhlitis had disappeared under Soda/

Soda Salicylate. He makes the statement that there is no other explanation for the heart membrane and peritoneal membrane having been attacked at the same time and such a rapid clearing of the typhlitis by Salicylates. He (Dr. Eustace Smith) thinks that every case of appendicitis should be treated with salicylates. It may be that is carrying the idea too far, for whereas a number of cases might be cured by the salicylates, there are a number that would best be treated by the surgeon's knife, therefore this is a matter for the greatest discrimination. It may be added that when we meet a child with appendicitis, we do wisely to treat it with antirheumatic remedies, for most certainly a large percentage of them make a splendid recovery under this regime. The rule I adopt is that, provided there is no improvement in 24-36 hours, I not only change my therapeutics but keep a careful watch for evidence of suppuration or other complications which are well known to arise in this condition.

A. F. aet 12 years, was brought to me complaining of pains over the abdomen, accompanied by diarrhoea, feeling of sickness and malaise with headache. On examination I found the temperature practically normal, pulse 72, respiration/

respiration normal. The abdomen was tender all over but not more so than one would anticipate from deranged digestion. The tongue was furred and tremulous while the oral fluids turned red litmus blue. My suspicions being aroused, I elicited that both father and mother had suffered from Acute Rheumatism and a younger sister from Chorea. I considered this was a case of mild gastro-enteritis and treated her with soda salicyl. x grs. three times a day when the malaise and alimentary disturbance entirely disappeared after a few days.

G. T. aet 9 years. A most interesting and instructive case as all the indispositions of the child over a period of two years pointed to acute rheumatism or the Rheumatic diathesis as being the source of them all; to summarise the conditions found:-

- a. Family history of Acute Rheumatism.
- b. Two years ago the child complained of pains about the knees and ankle joints, especially on return from school. This her mother considered of little importance and did not consult a doctor.
- c. Some months later she had a sore throat which has recurred twice. This was treated on antirheumatic lines.
- d. Later the child was attacked with pains in the head/

head especially in the frontal and temporal regions, without any evident cause for them.

e. Some months later, the child had an attack of Chorea which lasted 4 weeks and was treated with salicylates and arsenic with rest in bed.

f. Subsequently she developed a condition of Rheumatic Anaemia which again cleared up with a course of Salicylate of Soda. At this period in her history, the first signs of endocarditis were noticed. Temperature 99.4°F., pulse 100 in bed, 112 in erect posture. On percussion the left ventricle was found to be slightly enlarged and the apex beat displaced downwards, auscultation revealed a rasping bruit preceding the first sound, heart beat somewhat inside the apex beat and not conducted.

Rheumatic nodules have developed on the elbows and slightly over the tendons at the wrists. This child has a typical Rheumatic Facies. She is slight in form, with dark hair and eyelashes, clear sclerotics, white skin with fine complexion and rather pinched features.

Treatment of Rheumatism in Childhood.

1. General Treatment.
2. Treatment of the manifestations already mentioned.

3. Prophylactic measures to be adopted in children who are the subjects of the Rheumatic Diathesis.

1. General Treatment, which should be followed in every case where there is the least suspicion of Acute Rheumatism.

a. The child should be in bed, wrapped in flannel night shirt, which should be closed over the feet by being buttoned or drawn by tape so that the feet and legs cannot be exposed. It should lie between blankets so as to avoid chilling of the surface of the body.

b. The room should be well aired with southern aspect if possible.

c. A good nurse is essential, for the fact that the child during the greater part of the time is not ill enough not to wish for many injurious things and to sit up in bed and expose the limbs, is sufficient reason for the presence of one who will rigidly carry out the practitioner's orders.

d. The diet must be regulated by the severity of the illness and the various stages in the return to health and the condition of the child's digestive apparatus. In the majority of cases milk, soda-water, milk and soda-water, plain water in abundance in small quantities/

quantities at a time, egg-flip, soft-boiled eggs, cocoa and milk, chicken soup, custard will certainly cover the diet of a child who retains any pyrexia. When pyrexia has disappeared, a more generous diet may be prescribed and gradually increased until the child has fully recovered from the effects of the illness. For thirst, Lemon Water should be given freely in addition to the liquids already mentioned.

e. The child should be kept perfectly dry of the perspiration and the clothes changed as soon as they are damp. The body should be sponged twice a day with tepid water.

f. The primae viae should be cleared out at once and always attended to that one motion per diem is effected by the aid of calomel gr. ii or iii followed by a saline draught. This prepares the system for the proper treatment of the disease besides helping to ward off any complication.

g. The therapeutic agents which have stood the test of time are the Salicylic Acid group first found by Kolbe and introduced as a treatment for Acute Rheumatism by MacLagan of London, and which has remained the foundation upon which many modifications have been made from time to time, but as yet the treatment of Acute/

Acute Rheumatism has not been perfected. That the treatment by Salicylic Acid and its derivatives has been an unmixed blessing there are few will deny, nevertheless, no doubt in the majority of cases it relieves the arthritis or other pains present and reduces the pyrexia and perhaps retards the onset of visceral complications by controlling the progress of the specific morbid condition.

It was customary at one time for the medical faculty to treat all cases of Rheumatism with large doses of alkalies, and even now there are some skilled physicians who pin their faith on Soda and Pot. Bicarb., Pot. Acet. and the Citrate of Potash. Gall and Sutton have treated a series of cases by rest in bed and an opiate. They considered that they have had signal success with this line of treatment and have shewn results which compare very favourably inasmuch as the percentage of cardiac complications is small.

In American practice, Potassiae Bromid has been much used in the treatment of Acute Rheumatism but I would suggest that the good results given as result of this treatment are not because of any curative action but rather on account of the soothing effect producing relief of pain.

Sir/

Sir Alfred Garrod has praised the combination of Pot. Aet., Citrate of Pot. and Quin. Sulph. combined with Sod. Bicarb.

Many other authorities have recommended other therapeutic agents which they have found useful in their own cases, such as Phenacetin, Aconite, Mercury, indeed there are very few drugs that have not been brought into the service of Acute Rheumatism at one time or another.

There seems to be a number of practitioners who consider that this is an illness that ends with the acute stage and contemporaneously the exhaustion and end of the toxin, and that it does not matter which drug is used or whether any is used at all as the result is the same should the patient survive. It would be a happy idea to think such was the case as a very grave responsibility would be lifted from the mind of the practitioner of an early and accurate diagnosis and treatment on the proper lines. It is quite true that in a great number of cases it is next to impossible to make an accurate diagnosis at the onset of an attack for the lack of symptoms. This delays treatment and precious hours are lost in which the toxin or virus is undoubtedly exhausting itself but unfortunately on the valves of the patient's heart.

Often/

Often a sedative mixture may relieve pain or helps to soothe the child and gives sleep, yet the toxaemia is not stopped in its progress. I consider it quite improper to give Opium to relieve pain unless ~~Sed~~-Salicyl. and Alkalies have first been tried and found to fail. My own experience is that the longer the pains exist, if not too acute, the better for the patient's heart because the pain in ~~moving~~ the joints limits the movement and helps to keep the patient in bed in a more resigned frame of mind.

As already stated, pain in children is not always a prominent symptom, which to me often proves an unfortunate difficulty in the treatment, as it is almost impossible to impress upon the child with the gravity of the illness and the need of absolute rest. Besides, the parents are inclined to sympathise with the child and to consider that the enforced rest is needless especially once the temperature is normal.

Dr. Haig in the Medical Press, November 11th, 1908, propounded rather a novel theory with regard to the medium in which the salicylates best act. He considered that the salicylates have a much greater beneficial action when the medium is acid, hence he concluded that whatever reduced/

reduced the alkalinity of the blood such as profuse perspiration, also he proposed to give acid foods. This line of treatment is quite new to me, and I think Dr. Haig would consider it necessary to be cautious where the salicylates were not certain in action as in sub-acute Rheumatism.

Fabian and Knopp have demonstrated in Germany the use of Collargol in Enemata or by the mouth in cases of Acute Rheumatism which had resisted the Salicylate treatment. The method they adopted was to clear the bowel by an enema followed half an hour later by an injection of 50 cc. of a 1% solution of Collargol. This was continued for 8 days twice a day. A solution of 1% of Collargol, 50 cc. given in cocoa three times in the day. The results were very satisfactory though not nearly so rapid in action as Sod. Salicyl.

In France Colloidal Medication has been used in Acute Rheumatism. To the profession the Colloidal group is interesting because of the catalytic properties and under certain circumstances hydration, oxydation and mollicular separation may occur and they also possess Bacteriological properties. They are administered by the mouth or per rectum, that there is very little evidence as yet that Colloidal preparations have any specific/

specific action in Acute Rheumatism

In the B. M. J., August 28th, 1908, May shows a close resemblance in the action of Cretinic Acids to that of Salicylic acids. He was able to point out para meta and other cretinic acids had the same specific action upon Acute Rheumatism, which was found with the Salicylate in the same dose.

Baynes considers Diplosal the best of all the salicylate preparations because it contains more salicylic acid than aspirin, Salol or Soda Salicyl.

Levy treated a large number of cases of Acute Rheumatism with excellent results and found that the pain and temperature were more quickly reduced with Diplosal than with any other derivative of the Salicylic group.

Minkowski found that^{not}/only were the results better, but he found no disturbance and no tinnitus even in patients who were susceptible to salicylic acid.

It is very often used (Diplosal) in doses of $\frac{1}{4}$ - 1 gr., 3, 4 or 5 times in the day. The importance of these preparations is that they not only relieve the symptoms but do so without deranging the other systems of the body.

Some children have a decided idiosyncrasy to Sod-Salicyl. and even aspirin and Salol, who yet can take Diplosal; this is a fact always well to bear in mind.

B. J./

B. J., a young girl, was under my care for Acute Rheumatism. She had been prescribed Sao-Salicyl. in 10 gr. doses every 3 hours. After 24 hours very persistent vomiting was set up. She was then tried with Soda Salicyl. gr. v, with Soda Bicarb. gr. v. Still the vomiting persisted. There was a good deal of collapse and the friends were becoming anxious. I concluded this was a case of Acid Intoxication and tried Alkaline Enemata, by the mouth Soda Water and ~~Sod~~-Bicarb. About the end of the week the patient was much better, vomiting had ceased, pains gone, and she got quite well. My experience has shown me that every case of Acute Rheumatism which proclaims itself with any decided pain and temperature should be treated with either alkalies alone for one day, ~~pre~~ceding with ~~Sod~~-Salicyl. or give equal parts of ~~Sod~~-Salicyl. and Sod. Bicarb. from the beginning, or use such a preparation as Diplosal which contains all the essentials of Sod. Salicyl and yet can be taken with impunity by the most susceptible patient. Some observers think that we should increase the dose of Sod. Sal. when any idiosyncrasy is met with, to overcome such a condition. I have no experience of such a measure and do not intend to experiment with it, for/

for the cases of Salicylic Acid poisoning admit of no delay in changing the line of treatment altogether and adopting such lines as are calculated to counteract any serious condition of vomiting and collapse which may arise from the administration of the Acid Salicylate.

In unmistakeable cases of Acute Rheumatism the Salicytic group of medicines are far ahead of anything I have yet tried, but it is the obstinate cases, which are not entirely cleared up, which show symptoms indicating hidden foci of mischief that one is inclined at times to lose faith in the Salicylates. For such cases I have every confidence in recommending the Perchloride of Mercury as inimical to the Rheumatic Virus especially in children. For children of 5 years I prescribe it in doses of $2\frac{1}{2}$ minims alone with an equal dose of Soda Salicyl and Chloroform Water to ^{& this dose} 3 $\frac{1}{2}$ and given 3 or 4 times in the day. In the failures with Soda Salicylate there is certainly evidence that some other agent is required and the Perchloride of Mercury given in this combination which not only cuts short obstinate cases also protects the endocardium from injury.

Dr. Leonard Williams of London points out that the reason why Soda Salicylates seem to have no action in the hands/

hands of some practitioners, is that they have combined the drug with alkalies which influence their chemical action. He goes on to say that in the body they play ^{and} the part of Acids/in virtue of this action only do they achieve the result they are given for. In the adult, I think, this is perfectly true, but in children there is sometimes a danger, as Dr. Langland points out, of Acid Intoxication, and therefore alkalies should be combined, or better, given before meals, so as to make the urine alkaline.

Russel Reynolds recommends Tinct. Ferri Perchlor in large doses on account of the Anaemia produced and which often accompanies the disease, and it has certainly been shown that favourable results may follow its administration in Acute Rheumatism. It has always been the custom of practitioners to administer haem~~at~~^{at}onic tonics in convalescence from most illnesses, but these patients have to be carefully selected, as numbers are susceptible to being upset by iron after Rheumatism and some writers go as far as to say that a return of Acute Rheumatism may be induced by the administration of iron during convalescence.

In quite a number of children who have had acute Rheumatism it is apt to recur before the previous attack has altogether subsided and it behoves us to be extremely careful/

careful that nothing is done to cause a return of the symptoms and to be always watchful of the slightest indication of such return and to be prepared to resume the treatment by Salicylates.

It is quite possible that often we misinterpret signs, such as a slightly increased pulse rate, and perhaps an increase of $\frac{1}{2}$ -1 degree of temperature which have persisted after an attack of Rheumatic Fever in a child. They are more than likely the latent foci localised in the Endocardium, the smouldering remains of the big fire which may burst forth at any moment.

It is not the attack, which lasts but a week or so, which gives rise to so many disabled hearts, but it is the case which prolongs itself into the second and third week without any definite symptoms as to probable recurrence of an acute attack, but which never clears up entirely.

My experience of a slightly elevated temperature after the 10th day leads me to conclude that cardiac mischief will follow and until I commenced the use of Perchloride of Mercury this invariably happened in my own cases. Let me cite the case of:

A. I., a young girl who had been the subject of several attacks of Acute Rheumatism during the last 2 years. Seven months ago she had a severe attack with Arthritis (slight) temp./

temp. 101-102F., pulse 100, sweating (which is not very common in children) and a congested throat. This was treated on Anti-rheumatic lines but at the end of the 14th day the temperature was 99⁰ F., pulse 100, the pains had entirely disappeared, so also the condition of the throat and the child seemed quite well. The parents were naturally anxious that she should have some solid food and get out of bed which was refused. All the medicines known, e.g. Aspirin, Salol, Diplosal, Perchloride of Iron, that might effect a reduction in the temperature to normal, had all entirely failed. What then was the explanation of this temperature? Pains were absent, respiration was normal, pulse 80, no murmur was to be heard over the cardiac area. The only explanation feasible was the Rheumatic Virus was sending out its toxins into the blood stream. At the end of 5 weeks a fresh outburst of Acute Rheumatism made its appearance. The temperature shot up to 101F. the pulse 113 and there was profuse sweating. This was without a doubt due either to the discharge of an accumulation of the toxin or the precipitation of some acutal virus into the blood stream. This was treated on the same lines as the previous attack and subsided in 14 days, but even then the temperature did not fall absolutely to normal. At/

At the end of the second attack there was heard at the apex a rasping murmur preceding the first sound and limited to the apex area.

The patient was markedly anaemic. At the end of the 8th week the temperature was found to be normal in the morning but rose to 99 or 99.2F. in the evening. I still kept the child in bed and continued the rigid milk diet and Salicylates which she was quite well able to take, and which I found quite as efficient, if not more so, than any other treatment. At the end of the 11th week she had another relapse with characteristic symptoms and I then determined to combine Perchloride of Mercury with Sodium Salicylate and had the satisfaction of finding in 3 days that the temperature was quite normal and all traces (except the heart murmur and slight anaemia) of Acute Rheumatism all gone. Whether in this case it was actually the exhaustion of the Rheumatic Virus, or the specific action of the Perchloride of Mercury that terminated the action of the virus I am not prepared at present to state, though I have had signal results with this Salt of Mercury in combination with Soda Salicylate in many cases of Acute Rheumatism in children since and would most certainly recommend its use to the profession. This child has had no symptoms of Acute Rheumatism since some 3 months ago, though/

though I have kept her in bed absolutely owing to the Cardiac lesion which has improved marvellously under the treatment with

Sod Salicylate
Liq. Hydrarg Perchlor
T^r nucis vomical aa 3 ii
Aqua Chloroformi at 3vi. Sg 3ii al.

During convalescence from Acute Rheumatism particular attention should be given to the patient on account of this tendency to recurrences. The child should be kept warm in bed until some days have elapsed in which there have been no symptoms of the disease. Even then the patient should be confined to one room and every precaution taken to avoid chill or damp. The diet should be carefully regulated and very gradually increased as the child's appetite returns, but as Dr. Mitchell Bruce points out it is a good rule never to give Salicylates and solid foods together, it is wiser to complete the treatment before giving solid food.

The method of treatment in convalescence which I have found most satisfactory is to continue the Salicylates 3 or 4 days after all signs of the disease have disappeared and provided there are no complications and the heart is not affected, I allow the patient a choice of fish, chicken, sweetbread, eggs, milk, custard and cocoa. After 2 days the/

the child may be allowed to the sofa, while at this stage I prescribe Syr. Ferri. Phos. Co and extract of Malt, which are continued until the child has regained its former vitality.

2. Treatment of some of the manifestations already mentioned.

i. Rheumatic Throat has been already dealt with.

ii. Growing Pains. This condition does not always come under the practitioner's care. Most mothers consider that this pain is the price their children have to pay for their growth. When it does come to the notice of the doctor it should be treated with a thoroughness that will allow of no hesitation. The child should be kept in bed and given Sod Salicyl in suitable doses to its age. Calomel always being given at first, followed by a saline purgative before the Salicylate is commenced. Strict invalid diet, and this routine should be carried out until all pains have disappeared, and discontinued only when satisfied that there is no heart affection. The treatment applies to children with Arthritis who may have no temperature or other sign of the disease, and in spite of the opposition which this rigid treatment may be met with it is the duty of every practitioner to insist on his orders being carried out/

out to the letter, or have another medical opinion. If the pains are very severe I wrap the affected part in cotton wool soaked in a Liniment of Aconite and Belladonna equal parts with a little olive oil, or Lin Methyl Salicyl. Some infect Morphia or give it by the mouth, but I am convinced that this is not good practice, for if it relieves the pain this only gives the heart a greater chance of being affected by the Rheumatic poison, the symptoms being obscured.

iii. The Erythemata of Rheumatism are best treated by rest to the parts affected and the administration of Soda Salicyl and Arsenic. A saline aperient should be given and the diet light and nonstimulating.

With reference to Gastric pain accompanied by general pains about the body, the tongue furred with loss of appetite, and a history of rheumatism, there should be no hesitation in prescribing rest with Calomel and Sod Salicyl. Subcutaneous nodules do not admit of any special treatment, but they serve as a very strong indication that Sod Salicyl or other antirheumatic agent should be given in order to reduce the tendency to heart affection from Rheumatism of which they are the invariable signs.

Rheumatic Conjunctivitis and Iritis and the aching eye-balls met with are often most successfully combated by/

by anti-rheumatic agents, e.g. a Solution of Soda Salicyl being dropped into the eyes morning and evening.

iv. We turn now to what is the most important part of the treatment of Cardiac Disease. In this connection it must be admitted that while we know of remedies that absorb or cut short the manifestations of Acute Rheumatism, none of them, as far as we know, have any specific action in heart disease.

I am of the opinion, however, that provided Rheumatism is detected early and treated thoroughly with rest and Sod Salicyl there are few cases which will proceed to permanent cardiac disease.

There are often cases in which the practitioner is brought in contact with suffering from Endocarditis, the result of Acute Rheumatism, without having given any signs of Arthritis or Fever to need the doctor until dyspnoea or Anaemia appeared. It is in such cases that the weakness of our resources has to be faced, as we have no remedy which will cure any peri, myo or endocarditis which may have arisen.

The most important element as a preventive and curative agent is rest. It is certain that prolonged and complete rest will do much to arrest the progress of this condition.

Provided we find a systolic murmur in a child or signs of/

of peri-myo or endocarditis, we should at once follow this line of treatment:

- (a) Absolute rest in bed till pyrexia has ceased, the pulse normal in strength and rapidity, with the absence of a pulmonary second sound and also the absence of any murmur. Even then I follow the rule of keeping the child in bed for at least a month.
- (b) The bowels should be well regulated with Calomel and Salines daily, experience has taught me to depend upon the daily use of Calomel in the treatment of Cardiac Disease.
- (c) Light non-stimulating diet.
- (d) Strychnine in $\frac{1}{2}$ min. doses to a child of 4 years ter in die. Digitalis has been extolled by some for the rapid pulse but in my hands I have not seen much benefit and I am very much inclined to think that in some cases it does harm, by increasing the tension of the pulse and increasing the blood pressure, thus putting a greater strain on the myo cardium.

In cases of extreme exhaustion of the myo cardium, I am in the habit of giving small doses of Alcoholic stimulant ^{with} very great precaution; it requires to be taken after the rest in returning to activity. To begin I advise the patient to be propped up in bed with a bed-rest for a few days, then lying on the sofa, next sitting on a chair and finally/

finally walking and so on to complete activity.

I am thoroughly convinced of the undoubted benefit of the rest cure of Cardiac Disease in children. For many years I have treated all my cases of Cardiac mischief arising either from previous attacks of Acute Rheumatism, Chorea or de novo, with absolute rest in bed.

The plan I adopt is to keep the patient in bed for 3 months, carefully watching the progress of the Cardiac condition as well as the general condition of the patient.

My experience of this line of treatment is that:

- i. Many organic murmurs disappear entirely.
- ii. Many organic murmurs lose their rasping cantering sound but remain soft and blowing, indicating that the presystolic part of the mischief has been benefitted.
- iii. Even if the Cardiac murmurs are not influenced the Cardiac muscle itself is and retains its tone and vigour for years.

There is not much benefit gained by keeping a child in bed longer than 3 months, provided there is no pyrexia, and the heart disease is not progressive.

In cases of pericarditis an ice bag is the best for relieving the pain in the cardiac area; it also relieves the distress; the ice bag should be so arranged that it does not lie heavily on the chest but hangs from the ceiling/

ceiling by cards.

Some practitioners are fond of leeches over the sternum but I prefer the plan suggested by Dr. Caton of Liverpool as best. A succession of blisters the size of one shilling at one side of the sternum until 4 have been put on, then the same number on the other side, one each day until 8 in all are put on.

In all cases of carditis whether there are other symptoms or not of Acute Rheumatism present, I keep up the treatment with Salicylates and Perchloride of Mercury and in many cases I believe benefit has resulted.

3. Prophylactic Measures.

In defending a child with the Rheumatic Diathesis from attacks of Acute Rheumatism, there are some very necessary precautions to be taken. If a child has had one attack, whether mild or severe, it is the duty of the practitioner to let the parents be warned of the danger of its recurrence. If the parents have suffered from Acute Rheumatism it is well to protect their offspring as far as possible from the onset of the disease.

If the children reveal the Rheumatic Facies or have been known to have had "growing pains" or any symptom of Chorea along with the history of Acute Rheumatism in the parents/

parents there is mapped out for the practitioner a line of procedure in instructing the parents as well as the child that this disease, even in its slightest manifestations, must be carefully guarded against in such ways as follows:-

- (a) Child should wear flannel underclothing Winter and Summer.
 - (b) Cold or damp feet or body should be carefully avoided.
 - (c) Any disturbance of the alimentary canal should always be attended to at once, especially constipation.
 - (d) Growing pains should be treated by the parents as a grave condition which may lead to serious heart disease.
 - (e) In conditions of Malaise and debility, we should be careful, so as to exclude Rheumatism, to cut short such cases at this stage.
-